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BEFORE THE ARIZONA CORPORATION COMMISSION P 3: 54

WILLIAM A. MUNDELL
CHAIRMAN
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COMMISSIONER

AZ CORP COMMISSION
DOCUMENT CONTROL

IN THE MATTER OF THE JOINT APPLICATION
OF SUN CITY WATER COMPANY AND SUN
CITY WEST UTILITIES COMPANY FOR
APPROVAL OF CENTRAL ARIZONA PROJECT
WATER UTILIZATION PLAN AND FOR AN
ACCOUNTING ORDER AUTHORIZING A
GROUNDWATER SAVINGS FEE AND
RECOVERY OF DEFERRED CENTRAL ARIZONA
PROJECT EXPENSES.

Docket Nos.: W-01656A-98-0577
SW-02334A-98-0577

**SUN CITY WATER COMPANY'S
AND SUN CITY WEST
UTILITIES COMPANY'S
NOTICE OF FILING REBUTTAL
TESTIMONY**

GALLAGHER & KENNEDY, P.A.
2575 E. CAMELBACK ROAD
PHOENIX, ARIZONA 85016-9225
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Sun City Water Company and Sun City West Utilities Company ("Citizens")

hereby file the rebuttal testimony of Ronald Jackson, P.E., Keith Larson and David Buras, P.E. in this docket. By separate motion, Citizens moved to strike portions of Dennis Hustead's direct testimony filed on behalf of the Sun City Taxpayers Association ("SCTA") and the supplemental testimony of Marylee Diaz Cortez on behalf of the Residential Utility Consumers Office ("RUCO"). In the attached rebuttal testimony, Citizens has responded to some but not all of the arguments and allegations raised in §§ II, III (page, lines 13-15), IV, VI, VII, VIII, IX and XVI of Mr. Hustead's testimony and Mr. Cortez's testimony pending the Hearing Officer's ruling on the motion to strike. In the event the Hearing Officer denies the motion to strike, Citizens hereby reserves the right to offer supplemental rebuttal testimony to respond to such testimony and arguments, if necessary.

Arizona Corporation Commission
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JUL 31 2001

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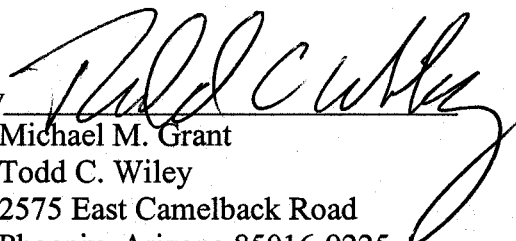
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DATED this 31 day of July, 2001.

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REBUTTAL TESTIMONY OF

KEITH LARSON

ON BEHALF OF

**SUN CITY WATER COMPANY AND
SUN CITY WEST UTILITIES COMPANY**

REBUTTAL TESTIMONY OF KEITH LARSON

W-01656A-98-0577/SW-02334A-98-0577

JULY 31, 2001

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I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, POSITION, EMPLOYER AND BUSINESS ADDRESS.

A. My name is Keith R. Larson. My business address is 1562 N. Del Webb Boulevard, Sun City, Arizona 85351. I work for Citizens Water Resources ("Citizens") as Water Resources Manager for Citizens' water operations in Maricopa, Mohave, and Santa Cruz counties in Arizona. I've been employed by Citizens since April 2001.

Q. WHAT ARE YOUR DUTIES AND RESPONSIBILITIES AS CITIZENS' WATER RESOURCES MANAGER?

A. As Water Resources Manager, I'm responsible for managing the water resources available to Citizens' water properties in Maricopa, Mohave, and Santa Cruz counties. I also manage the development and implementation of the SAVEH20 water conservation program. My specific duties include ensuring proper and timely filing of annual reports with the Arizona Department of Water Resources (ADWR) associated with assured water supply certificates, annual water withdrawal and use reports. I am responsible for water rights administration, managing Citizens' subcontracts for CAP water, and all short and long-range water resources planning activities.

Q. PLEASE SUMMARIZE YOUR RELEVANT EDUCATION, TRAINING AND PROFESSIONAL EXPERIENCE.

A. In 1978, I obtained a Bachelor of Science Degree in Watershed Science from Utah State University. In 1981, I obtained an M.S. degree in Hydrology from Oregon State University. Prior to my employment at Citizens, I worked for the City of Phoenix Water

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1 Services Department as the city's Principal Water Resources Planner from 1988-2001. My
2 duties essentially were the same as my current responsibilities with Citizens. Prior to working
3 with the City of Phoenix, I was employed by the Arizona Department of Water Resources as
4 Water Resources Planner for a period of approximately three years. I was the Lead Planning
5 Coordinator for the Second Management Plans for Arizona's active management area.

6 **II. BRIEF SUMMARY OF REBUTTAL TESTIMONY.**

7 **Q. PLEASE SUMMARIZE THE PURPOSE AND SCOPE OF YOUR**
8 **REBUTTAL TESTIMONY.**

9 **A.** Briefly, my testimony rebuts opinions and testimony offered by Dennis Hustead
10 on behalf of Sun City Taxpayers Association related to certain water rights and related issues.
11 Specifically, I address Mr. Hustead's testimony relating to (1) expiration of certain General
12 Industrial Use Permits (GIUPS) possessed by participating golf courses, (2) alleged benefits
13 derived from the Groundwater Savings Project (GSP) unrelated to the Sun City aquifer and (3)
14 stored water and water credits. As set forth below, Mr. Hustead's testimony is not well-taken on
15 these issues. Possible expiration of GIUPS possessed by participating golf courses will have no
16 bearing on the success and sufficiency of the GSP. The golf courses have ample water rights to
17 exchange for Citizens' CAP water. Likewise, Mr. Hustead's testimony relating to other benefit
18 to the golf courses stemming from the GSP has no bearing on the GSP. Finally, Citizens'
19 recovery or use of stored water or water credits does not impact the Preliminary Engineering
20 Report (PER) or GSP.
21
22

III. MR. HUSTEAD'S TESTIMONY RELATING TO POSSIBLE EXPIRATION OF INDUSTRIAL USE PERMITS POSSESSED BY PARTICIPATING GOLF COURSES IS NOT WELL-TAKEN.

Q. ON PAGES 8-10 OF HIS DIRECT TESTIMONY, MR. HUSTEAD RAISES ISSUES RELATING TO EXPIRATION OF GENERAL INDUSTRIAL USE PERMITS POSSESSED BY CERTAIN PARTICIPATING GOLF COURSES. DOES MR. HUSTEAD RAISE ANY VALID CONCERNS REGARDING THE VIABILITY OF THE GSP OR PER ON THAT ISSUE?

A. No. This issue has been thoroughly researched and addressed. I have reviewed and analyzed the issues relating to potential expiration of GIUPs. Even if GIUPs possessed by certain participating golf courses are not renewed in 2005 by ADWR, those golf courses may exchange their groundwater for all but only 42.27 acre-feet of Sun City West Utility Company's CAP allocation. That 42.27 acre feet shortfall constitutes merely 1.8 percent of the total CAP allocation for Sun City West and only 0.6 percent of the total combined CAP water allocation for Sun City West and Sun City. While Citizens and the Recreation Centers of Sun City and Sun City West desire to use their entire CAP water allotment, a 42.27 acre-feet or 1.8 percent shortfall will not jeopardize the Groundwater Savings Project.

Q. IN CONSIDERING THE GSP CONCEPT, DID THE PARTIES ANTICIPATE THE POSSIBLE EXPIRATION OF GENERAL INDUSTRIAL USE PERMITS POSSESSED BY THE GOLF COURSES? IF SO, HOW?

A. Yes. The golf courses of the Recreation Centers of Sun City own a total of 6,609 acre-feet of Type II groundwater rights, which exceeds the average annual use of the Sun City golf courses by 1,705 acre-feet per year. That surplus is more than sufficient to make up any minimal water rights deficits incurred by the Sun City West Recreation Centers courses during

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1 years of average or even above average water use. The parties anticipated the need to share
2 surplus water rights, and addressed that issue in the Operating Agreements between Citizens and
3 the Recreation Centers of Sun City and Sun City West, and Briarwood Country Club. Those
4 Operating Agreements require the Recreation Centers and Briarwood to "pool" their water rights
5 to make available, on a year-by-year basis, any surplus rights for use on golf courses that have
6 insufficient rights in the event that any GIUPs are not renewed by ADWR. The water rights
7 pooling provisions of those Operating Agreements ensure that all participating golf courses will
8 have sufficient water supplies and the entire CAP allocations of Sun City and Sun City West are
9 used each year. Mr. Hustead's testimony does not account for these circumstances and lacks
10 merit on these water rights issues.

11 **Q. ARE THERE ANY OTHER MECHANISMS TO ACCOUNT FOR ANY**
12 **GROUNDWATER RIGHT SHORTFALLS?**

13 **A.** Yes. Mr. Hustead also fails to address the use of effluent from the Sun City West
14 Water Reclamation plant. The Recreation Centers of Sun City West, by contract, have the first
15 priority right to all effluent from the reclamation plant. This contract was approved by the
16 Commission in Decision No. 61897. Such effluent water could be provided to the Sun City
17 West Recreation Center golf courses through a CAP Water/Effluent water exchange between
18 Citizens and the Recreation Centers. Such an exchange would ensure that all participating golf
19 courses use their existing effluent water rights and ensure that the entire CAP allocation of Sun
20 City West is used by Citizens each year.

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1 **Q. WHY IS GROUNDWATER RIGHTS POOLING PREFERRED OVER USE**
2 **OF THE EFFLUENT?**

3 **A.**Pooling of groundwater rights by the Recreation Centers is preferable for Citizens
4 ratepayers because it will enable the continued use of effluent credits by the Sun City Water
5 Company and the Sun City West Utilities Company. Use of effluent storage credits allow Sun
6 City and Sun City West to offset potential regulatory actions by ADWR related to compliance
7 with water conservation requirements. Regulatory actions may be mitigated with recovered
8 effluent credits because recovered effluent is not counted against a community's gallons per
9 capita per day (gpcd) conservation target. ADWR compliance actions could include fines
10 imposed on Citizens or requiring Citizens to implement specific water conservation programs.
11 Those actions could result in direct impacts to ratepayers in the form of mandatory water use
12 restrictions, alternative water rate structures to reduce water use, or higher water rates necessary
13 to recover costs for conservation programs or additional groundwater use fees that could be
14 implemented by the legislature in the future, and which are currently a topic of discussion within
the Governor's Water Management Commission.

15 **Q. ON PAGE 9 OF HIS TESTIMONY, MR. HUSTEAD OPINES THAT**
16 **CITIZENS' CHARACTERIZATION OF PUMPED WATER AS CAP WATER WILL**
17 **NEGATIVELY IMPACT THE AQUIFER. DO YOU AGREE?**

18 **A.**No. This supposition by Mr. Hustead has no basis in fact. Mr. Hustead's
19 testimony on this issue has nothing to do with Citizens' Preliminary Engineering Report (PER).
20 Fundamentally, the PER was not intended to address benefits to the aquifer. That's because the
21 Commission, in Decision No. 62293, expressly found that the proposed GSP and CAP
22 water/groundwater exchange will positively benefit the aquifer. Mr. Hustead confuses physical

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1 benefits to the aquifer with regulatory benefits associated with compliance with the Groundwater
2 Management Act (GMA). Mr. Hustead simply doesn't understand or overlooks the fact that how
3 the water is characterized from a GMA regulatory perspective cannot result in a negative
4 hydrologic impact on the aquifer. Put simply, the GSP will result in benefits to the Sun Cities
5 aquifer and save groundwater no matter how the water is characterized. Since all water
6 conservation requirements set by ADWR for the Sun City Water Company and the Sun City
7 West Utilities Company service areas remain in effect as long as any portion of the Utility's
8 water deliveries to its customers is groundwater, potable water demand is essentially constant.
9 Likewise, the golf course conservation requirements are unaffected by the water exchange,
10 resulting in a constant non-potable water demand. Therefore, every drop of CAP water
11 physically delivered to the golf courses reduces groundwater pumping by a like amount and
12 benefits the aquifer by the same amount.

13 **IV. MR. HUSTEAD'S TESTIMONY RELATING TO OTHER BENEFITS OF THE**
14 **GSP HAS NO BEARING ON THE SUFFICIENCY OF THE PER OR THE PROJECT.**

15 **Q. ON PAGES 12-13 OF HIS TESTIMONY, MR. HUSTEAD RAISES ISSUES**
16 **INVOLVING CLAIMED OTHER BENEFITS OF THE GSP UNRELATED TO THE**
17 **BENEFITS TO THE AQUIFER. DOES THAT TESTIMONY HAVE ANY BEARING**
18 **ON ADEQUACY OF THE PER?**

19 **A.** Absolutely not. On pages 12-13 of this testimony, Mr. Hustead implies that the
20 accuracy, validity, and credibility of the PER and GSP should be questioned because the
21 participating golf courses may derive certain other benefits from the GSP. In this testimony, Mr.
22 Hustead does not raise any valid engineering or water rights issues. Instead, Mr. Hustead
insinuates that the PER was undertaken to benefit the golf courses and not the Sun Cities'
aquifer. Mr. Hustead has no support for those arguments. For example, Mr. Hustead opines that

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1 the Sun City West golf courses must secure a replacement source of water to account for
2 expiration of the GIUPs. But the GSP does not solve the Sun City West golf courses' need to
3 secure water rights to replace the General Industrial Use Permits, should they not be renewed by
4 ADWR in 2005. Pursuant to the binding agreements between Citizens and the Recreation
5 Centers, deliveries of CAP water can only be made pursuant to a water rights exchange. It is a
6 water for water exchange. CAP water doesn't replace the GIUPs. The Sun City West
7 Recreation Centers retains the responsibility to secure and maintain sufficient groundwater
8 withdrawal or other water rights for exchange purposes. And, in fact, as previously explained,
9 the Sun City West Recreation Centers already have secured an alternative supply – effluent water
10 from the Sun City West Water Reclamation Plant. Mr. Hustead also makes mention of the fact
11 that another benefit accruing to the golf courses is that CAP water is being provided at 80% of
12 the cost to pump groundwater. That cost differential does not undermine the GSP or the PER.
13 The lower price is to compensate for the adjustments in golf course operation and maintenance
14 practices necessary with the introduction of a new water delivery system and new water source.
15 The lower price simply offsets additional costs those golf courses will incur.

15 **Q. ON PAGE 12 OF HIS TESTIMONY, MR. HUSTEAD CONTENDS THAT**
16 **“[I]F ALL THE EFFLUENT GENERATED IN SUN CITY WEST WAS DIRECTLY**
17 **DELIVERED TO GOLF COURSES, APPROXIMATELY 2,800 AF OF PUMPING**
18 **COULD BE ELIMINATED AT NO COSTS TO CITIZENS' RATEPAYERS.” IS**
19 **DIRECT DELIVERY OF EFFLUENT TO THE GOLF COURSES A VIABLE OPTION**
20 **FOR SUN CITY WEST?**

20 **A.** No. Mr. Hustead's testimony is wrong on these effluent issues because delivering
21 2,800 acre-feet of effluent directly to the golf courses instead of maintaining the current practice
22

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1 of recharging effluent for potable use would not benefit the aquifer. The amount of water
2 pumped each year from the aquifer in the Sun Cities area for golf course use and deliveries to
3 Citizens customers would be the same regardless of whether effluent is directly delivered to the
4 golf course or recharged in accordance with current practice. For example, currently,
5 approximately 32,500 acre-feet of groundwater is pumped for golf course and potable use in the
6 Sun Cities and approximately 2,800 acre-feet of effluent is recharged into the aquifer at the at the
7 Sun City West Water Reclamation Plant. The net depletion of the Sun Cities aquifer is 32,500
8 acre-feet of pumping less the 2,800 acre-feet of recharge for a net depletion of 29,700 acre-feet.
9 Mr. Hustead's proposal would reduce the actual pumping to 29,700 acre-feet. However, it also
10 eliminates the recharge component. The net depletion of the aquifer is still 29,700 acre-feet –
11 exactly the same as it is now. Furthermore, the significant regulatory benefits to Sun City Water
12 Company and Sun City West Utilities Company ratepayers from Citizens' use of the effluent
13 credits to meet potable demand (as earlier described) are lost completely

13 **Q. ON PAGES 13-14 OF HIS TESTIMONY, MR. HUSTEAD RAISES**
14 **CONCERNS ABOUT THE PER BECAUSE CITIZENS' RATEPAYERS WILL BEAR**
15 **THE COSTS OF DESIGNING, CONSTRUCTING AND OPERATING THE GSP. ARE**
16 **THESE VALID CONCERNS WITH THE PER?**

17 **A.** No. Responsibility for construction and design costs has nothing to do with
18 adequacy and sufficiency of the PER. Mr. Hustead implies that the consulting engineer who
19 performed the PER did not attempt to design a project in which costs were minimized because
20 there was no monetary incentive on the part of the users of the water delivery system. That is an
21 unsupported and improper opinion. The basic parameters of the PER were set by the CAP Task
22 Force and the Commission in Decision No. 62293. The PER meets all of the requirements

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1 placed on it by the Commission. Mr. Hustead also contends that a lack of cost accountability
2 was the reason that use of the existing Sun City West effluent distribution system for west to east
3 deliveries of CAP water was not considered further. Mr. Hustead is wrong. In reality, the Sun
4 City West distribution system simply isn't capable of delivering CAP water west to east; and,
5 Sun City West wouldn't allow a west to east flow because of the potential future need to use the
6 system for effluent deliveries east to west (obviously, the system can't be used for east to west
7 and west to east deliveries at the same time).

8 **Q. DO YOU AGREE WITH MR. HUSTEAD'S STATEMENT ON PAGE 14**
9 **THAT CITIZENS' ANNUAL RECOVERY OF EFFLUENT RECHARGED AT THE SUN**
10 **CITY WEST WATER RECLAMATION FACILITY AND RECOVERY OF CAP**
11 **WATER STORED AT THE MARICOPA WATER DISTRICT GROUNDWATER**
12 **SAVINGS FACILITY PRODUCE NO NET BENEFIT TO THE AQUIFER?**

13 **A.** No. The annual storage and recovery program utilized by Citizens positively
14 benefits the aquifer in many ways. Again, Mr. Hustead misconstrues the physical and regulatory
15 nature of underground storage and recovery operations in Arizona. He wrongly implies that
16 recovering storage credits on an annual basis doesn't benefit the aquifer. The benefits to the
17 aquifer of annual storage and recovery of CAP water are really quite simple to understand and
18 are similar to the example provided previously for effluent storage and recovery. It works like
19 this. Citizens' use of wells to meet customer needs in the Sun Cities service areas is relatively
20 constant from year to year, regardless of whether CAP water is put into the aquifer by Citizens.
21 In 2000, Citizens pumped about 23,500 acre-feet of water from the aquifer to meet it's customers
22 needs. Of that amount, approximately 6,600 acre-feet of the water was recovered credits for
CAP water stored at the Maricopa Water District Groundwater Savings Facility. The net

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1 depletion of the aquifer to meet potable water demands was therefore 16,900 acre-feet. If
2 Citizens had not recharged the 6,600 ace-feet of water, the net depletion of the aquifer would
3 have been 23,500 acre-feet. The physical benefit to the aquifer is the act of putting the water
4 into the ground. Clearly, after storage actions are taken, there is more water in the aquifer than
5 there would be had no storage action been taken. However, it should be noted that storage of
6 the Sun Cities CAP water allocations in the Maricopa Water District Groundwater Savings
7 Facility provide much more indirect benefits to the aquifer than the Groundwater Savings Project
8 would because of the Maricopa Water District Facility's more remote location. In should also
9 be emphasized that, in fact, recovery of CAP water storage credits on an annual basis by
10 Citizens is required by state statute (A.R.S. § 45-802.01).

11 **V. MR. HUSTEAD'S TESTIMONY RELATING TO STORED WATER AND**
12 **WATER CREDITS HAS NO BEARING ON THE GSP OR PER.**

13 **Q. ON PAGES 17-18 OF HIS TESTIMONY, MR. HUSTEAD QUESTIONS**
14 **THE PER AND GSP BECAUSE CITIZENS MAY BE RECOVERING OR**
15 **TRANSFERRING STORED WATER AND AVOIDING THE ACCRUAL OF WATER**
16 **CREDITS. DO YOU AGREE?**

17 **A. No.** As discussed above, Mr. Hustead again wrongly concludes that Citizens'
18 annual recovery of storage credits constitutes "additional pumping" that results in "additional
19 groundwater depletion in the Sun Cities area" and, therefore, violates Decision No. 62293. This
20 testimony misses the mark because physical pumping from Citizens' wells in the Sun Cities
21 service areas is unchanged by the regulatory label applied to the water. Citizens has the rights to
22 and has no choice but to pump every drop of water needed by its customers. This pumping will
occur with or without any storage of water. When Citizens stores water, it is clearly a benefit to
the aquifer. When Citizens, through annual recovery of the stored water, changes the legal

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1 character of the pumped water (water that must be pumped with or without storage) to recovered
2 CAP water, the hydrologic benefit to the aquifer is unchanged.

3 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

4 **A. Yes.**

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1 **BEFORE THE ARIZONA CORPORATION COMMISSION**

2 WILLIAM A. MUNDELL
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8 IN THE MATTER OF THE JOINT APPLICATION
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17 **REBUTTAL TESTIMONY OF**

18 **DAVID BURAS, P.E.**

19 **ON BEHALF OF**

20 **SUN CITY WATER COMPANY AND**
21 **SUN CITY WEST UTILITIES COMPANY**
22

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<u>DB-1</u>	LIFE CYCLE COSTS (OVER 50 YEARS) FOR PROPOSED BOOSTER PUMP STATION
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I. INTRODUCTION & QUALIFICATIONS.

Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS?

A. My name is David Buras, P.E. My business address is 2141 East Highland Avenue, Suite 250, Phoenix, Arizona 85016.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am a vice president at HDR Engineering, Inc (HDR). I am also HDR's Project Manager of the Groundwater Savings Project (GSP) design team.

Q. HOW LONG HAVE YOU BEEN EMPLOYED BY HDR ENGINEERING?

A. I have been employed by HDR Engineering for approximately 17 years.

Q. WHAT ARE YOUR DUTIES AND RESPONSIBILITIES?

A. I am the Manager of HDR's water resources operations in Arizona. Our water resources staff prepares a wide range of engineering studies and design documents related to the collection, control and conveyance of water resources. Additionally, I serve as project manager on select projects, such as this one.

Q. WHAT IS YOUR RELEVANT EDUCATION, TRAINING AND EXPERIENCE?

A. I am a graduate of South Dakota State University, with a Bachelors of Science in Civil Engineering. I have over 20 years experience in Arizona designing systems for the movement of water, such as pipelines, canals, channels, reservoirs, pump stations, detention basins and such. I am a Licensed Professional Engineer and a Registered Land Surveyor in the State of Arizona.

II. THE PER IS A COMPLETE AND ADEQUATE ANALYSIS OF THE GSP.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I am providing rebuttal testimony to the direct testimony of Mr. Dennis Hustead who testified on behalf of the Sun City Taxpayers Association.

Q. RESPONDING DIRECTLY TO MR. HUSTEAD'S ALLEGATIONS ON PAGES 6 AND 7 OF HIS TESTIMONY, DID YOU OR ANY MEMBER OF YOUR PROJECT TEAM ATTEMPT TO "SKEW" DATA OR CALCULATIONS REGARDING COSTS OF WATER WHEELING THROUGH THE BEARDSLEY CANAL, CONSTRUCTION OR OPERATION COSTS OF A BOOSTER PUMP STATION AND/OR RIGHT-OF-WAY COSTS IN FAVOR OF ANY ALTERNATIVE PRESENTED IN THE GSP?

A. Absolutely not. No attempt was made in any way to skew data or calculations regarding costs of water wheeling through the Beardsley Canal, construction or operation costs of a booster pump station and/or right-of-way costs in favor of any alternative presented in the GSP. We wrote the PER as an objective preliminary engineering review of the Groundwater Savings Project.

Q. PLEASE ADDRESS THE QUESTIONS ABOUT THE BOOSTER PUMP STATION'S COSTS RAISED BY MR. HUSTEAD IN HIS TESTIMONY ON PAGE 21?

A. On pages 21-22 of his testimony, Mr. Hustead raises concerns about the life cycle costs for the booster pump station contained on pages E-3 and E-4 of the PER as compared to the booster station summary on page D-47 of the PER. Mr. Hustead argues that the summaries on pages E-3 and E-4 are overstated regarding construction and operation & maintenance costs

REBUTTAL TESTIMONY OF DAVID BURAS, P.E.
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1 because they do not coincide with the numbers on page D-47. That issue can be resolved easily
2 and does not detract from the PER.

3 Basically, the table included on page D-47 of the PER unfortunately includes information
4 and numbers from an earlier draft version of the report. The cost summaries on page E-3 and E-
5 4 were based on the correct final numbers but page D-47 contains the wrong back-up numbers.
6 Page D-47 should have been corrected before issuance of the final version of the PER but we
7 mistakenly left those numbers in the report. It bears emphasis that the ultimate calculations
8 contained on pages E-3 and E-4 were based on the correct numbers. The correct version of Page
9 D-47 is attached as exhibit DB-1. Exhibit DB-1 should have replaced page D-47 in the PER.

10 The tables on E-3 and E-4 are summary tables and coincide with attached exhibit DB-1.
11 Pages E-3 and E-4 were designed to show simple cost comparisons. As such, we didn't show the
12 individual line items for incidental costs such as engineering, contingencies and construction
13 administration in these numbers and they were not itemized as in the summaries for each
14 alternative. But the summaries contained on pages E-3 and E-4 were calculated from the
15 numbers on exhibit DB-1. Those calculations are correctly summarized on pages E-3 and E-4
16 and were performed according to accepted engineering calculations and standards. Mr.
17 Hustead's concerns about the validity of the PER are not supported by any valid engineering
18 calculations.

19 Also, the pumping station capital construction cost and the factors applied to the capital
20 cost including engineering design, construction administration, admin/legal/financial, and
21 contingency (which total to 55% of capital construction cost) are consistent throughout the PER
22 (i.e. Joint Project estimates, and Alternatives B, C, and D). Mr. Hustead simply has pointed out a
typo in the report that does not undermine the engineering analysis in any way.

Q. PLEASE ADDRESS THE QUESTIONS ABOUT THE RIGHT-OF-WAY COSTS RAISED BY MR. HUSTEAD IN HIS TESTIMONY ON PAGE 22?

A. The costs reported in the text were from the original investigation done by our subconsultant, Universal Field Services (UFS), and represented only the land costs for the permanent easement. HDR added to the UFS figures to allow for additional real costs associated with property acquisition such as temporary construction easements, title company services, appraisal services, legal descriptions, recording fees, etc. The figures shown in the tables should therefore be used, not those in the text. The costs indicated should have been itemized as a "lump sum" amount rather than the "per square foot" amounts as shown. However the amounts shown are valid for all alternatives.

Alternative	Text Page Reference	Cost Reported in Text	Table Page Reference	Cost Reported in Table
A	D-12	\$50,000	D-13	\$100,000
B	D-14	\$49,000 to \$68,000	D-14	\$116,000
C	D-15	\$60,000 to \$90,000	D-16	\$150,000
D	D-17	\$80,000 to \$120,000	D-18	\$200,000

1 **Q. ON PAGES 27-28 OF HIS TESTIMONY, MR. HUSTEAD IS CRITICAL**
2 **OF THE GSP BASED ON THE APPARENT CONTRADICTION BETWEEN PAGE A-4**
3 **OF THE PER AND THE SUPPLEMENTAL PER. CAN YOU EXPLAIN THE**
4 **CIRCUMSTANCES SURROUNDING THE PER'S STATEMENTS REGARDING**
5 **PARTICIPATION OF HILLCREST AND BRIARWOOD GOLF COURSES?**

6 **A. Yes.** Page A-4 of the PER states that "as determined by the analysis conducted by
7 the consulting team and presented in this report, without participation of the two private courses
8 in Sun City West, the GSP will not be operationally feasible." Those statements on page A-4 of
9 the PER were based on assumptions that Briarwood and Hillcrest country clubs would be project
10 participants. As mentioned on page A-4 of the PER, the "ACC ordered Citizens to consider the
11 participation of non-Recreation Center courses in the GSP." We were advised that Briarwood
12 and Hillcrest were operational participants in the GSP and that's why page A-4 contains those
statements. We simply assumed those courses were necessary.

13 In his testimony, Mr. Hustead wrongly implies that HDR specifically calculated and
14 analyzed the engineering data regarding operations without Hillcrest Country Club. That is
15 simply not the case. As a result, Mr. Hustead improperly assumes a contradiction between the
16 PER and Supplemental PER. HDR did not evaluate the underlying engineering data regarding
17 project operations without Hillcrest Country Club.

18 **Q. HAVE YOU REVIEWED MR. JACKSON'S SUPPLEMENTAL**
19 **ENGINEERING REPORT REGARDING THE NECESSITY FOR PARTICIPATION OF**
20 **BOTH COUNTRY CLUB GOLF COURSES IN SUN CITY WEST?**

21 **A. Yes,** I reviewed Mr. Jackson's supplemental PER and background data underlying
22 the report.

1 **Q. DO YOU AGREE WITH THE CONCLUSIONS THAT MR. JACKSON**
2 **REACHED IN HIS SUPPLEMENTAL ENGINEERING REPORT?**

3 **A. Yes, in my view, Mr. Jackson's supplemental report correctly analyzes the**
4 **engineering data regarding the participation of Hillcrest Country Club. Further, the original PER**
5 **and the Supplemental PER do not conflict on this issue. As Citizens consulting engineer, HDR**
6 **made the statement regarding participation of both country club golf courses in Sun City West in**
7 **the GSP as a conservative opinion to ensure that Citizens would meet the expressed goal of**
8 **always consuming the entire annual CAP allocation and having volumetric flexibility to prevent**
9 **upsets. Since the calculations presented in the Supplemental PER indicate that the GSP will be**
10 **viable without the specific participation of Hillcrest Golf Club, those goals still will be realized**
11 **on the project.**

11 **Q. DO THIS CONCLUDE YOUR TESTIMONY?**

12 **A. Yes, it does.**

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REBUTTAL TESTIMONY OF DAVID BURAS, P.E.
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EXHIBIT DB-1

LIFE CYCLE COSTS (OVER 50 YEARS)
FOR PROPOSED BOOSTER PUMP STATION

(CORRECTED PAGE D-47 TO CITIZENS' PRELIMINARY ENGINEERING REPORT)

**LIFE CYCLE COSTS (OVER 50 YEARS)
FOR PROPOSED BOOSTER PUMP STATION**

Item Description	Unit	Quantity	Unit Price	Amount
Concrete Base Slab & Excavation	C.Y.	30	\$350	\$10,500
Pumps 3400 GPM, 75 hp	EA.	3	\$36,400	\$109,200
Electrical and Control Equipment	L.S.	1	\$38,000	\$38,000
Electrical Feed	L.S.	1	\$9,000	\$9,000
10" Pump Control Valves	EA.	3	\$4,390	\$13,170
10" Cushioned Check Valves	EA.	3	\$6,990	\$20,970
16" Gate Valve	EA.	3	\$6,580	\$19,740
14" Gate Valve	EA.	3	\$3,800	\$11,400
2" Air Release Valves	EA.	3	\$650	\$1,950
Miscellaneous Piping	L.S.	1	\$34,400	\$34,400
Site Grading & 2" D.G.	S.Y.	990	\$7	\$6,930
8' High Block Wall	L.F.	372	\$50	\$18,600
20' Sliding Gate	L.S.	1	\$1,800	\$1,800
Property Costs	S.F.	12,000	\$1	\$12,000
Booster Pump Station Capital Costs Subtotal				\$307,660
			Annual Cost	Present Worth
Power Costs Present Worth @ \$0.07/kwh			\$60,040	\$983,196
O&M Manhour Costs PW @ 0.5 hrs/day for \$30,000/yr salary			\$1,875	\$30,704
O&M PW Costs @ 1% of Structure & 2.5% of Equipment/ Yr			\$6,308	\$103,299
Salvage Value of Structure				(\$2,673)
Subtotal Present Worth O&M and Salvage Costs				\$1,114,527
Total Life Cycle Cost				\$1,422,187

Note: Power Costs were computed by assuming 2 pumps run always 3/4 of the year and 1 pump will run always the remaining 1/4 of the year.

Subtotal Equipment

\$223,430

Subtotal Structures

\$72,230

BEFORE THE ARIZONA CORPORATION COMMISSION

**WILLIAM A. MUNDELL
CHAIRMAN**

**JIM IRVIN
COMMISSIONER**

**MARC SPITZER
COMMISSIONER**

**IN THE MATTER OF THE JOINT APPLICATION
OF SUN CITY WATER COMPANY AND SUN
CITY WEST UTILITIES COMPANY FOR
APPROVAL OF CENTRAL ARIZONA PROJECT
WATER UTILIZATION PLAN AND FOR AN
ACCOUNTING ORDER AUTHORIZING A
GROUNDWATER SAVINGS FEE AND
RECOVERY OF DEFERRED CENTRAL ARIZONA
PROJECT EXPENSES.**

**Docket Nos.: W-01656A-98-0577
SW-02334A-98-0577**

REBUTTAL TESTIMONY OF

RONALD JACKSON, P.E.

ON BEHALF OF

**SUN CITY WATER COMPANY AND
SUN CITY WEST UTILITIES COMPANY**

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I. INTRODUCTION AND QUALIFICATIONS.

Q. PLEASE STATE YOUR NAME, COMPANY, TITLE AND BUSINESS ADDRESS?

A.My name is Ronald Jackson, P.E. My business address is 12425 West Bell Road, Suite C306, Surprise, Arizona 85374. I am the Supervisor of Planning and Special Projects for Citizens Water Resources. I am also the Project Manager of the Groundwater Savings Project (GSP) design team. I have been employed by Citizens Water Resources for approximately 2 and one half years.

Q. WHAT ARE YOUR JOB DUTIES AND RESPONSIBILITIES?

A.As the Supervisor of Planning and Special Projects, I perform and manage preparation of planning policies and studies regarding future improvement and expansion of Citizen's water and wastewater treatment, collection and conveyance systems. I also design and manage large and special capital improvement projects.

Q. WHAT IS YOUR RELEVANT EDUCATION, TRAINING AND EXPERIENCE?

A.I am a graduate of Syracuse University with a Bachelors of Science in Civil Engineering and a graduate of Broome Community College with an Associates of Science in Engineering Sciences. I am a member of the American Water Works Association, the Water Environment Federation, and the International Association for Water Quality. I was a practicing professional consulting engineer for 12 years before coming to work for Citizens. During my previous employment, I designed and managed projects involving water and wastewater

1 treatment, storage and conveyance; residential and commercial site design; industrial process
2 design; and storm water management and pollution control. I am a Licensed Professional
3 Engineer in the states of Arizona, New York and New Jersey.

4 **Q. WHAT WAS YOUR ROLE AND INVOLVEMENT REGARDING THE**
5 **GROUNDWATER SAVINGS PROJECT IN THE SUN CITIES?**

6 **A.** I have served as Citizens Water Resources Project Manager for the Ground Water
7 Savings Project since February 2000. I have ultimate responsibility over most aspects of the
8 project including assembling and managing the design team, preparation and submission of the
9 PER and facilitation of the Technical Advisory Committee.

10 **II. BRIEF SUMMARY OF REBUTTAL TESTIMONY.**

11 **Q. PLEASE SUMMARIZE THE PURPOSE AND SCOPE OF YOUR**
12 **TESTIMONY IN THIS PROCEEDING?**

13 **A.** I am testifying on behalf of Sun City Water Company and Sun City West Utilities
14 Company. My testimony rebuts the direct testimony of Mr. Dennis Hustead on behalf of the Sun
15 City Taxpayers Association. Under Commission Decision No. 62293, the focus of this
16 proceeding is whether Citizens' Preliminary Engineering Report (PER) adequately addresses
17 three topics--(1) "the feasibility of a joint facility with the Agua Fria Division including the
18 timeframe for any such joint facility;" (2) "the need for all major elements of [the] proposed plan
19 (e.g., storage and booster stations);" and (3) "binding commitments from golf courses, public and
20 private, and terms and conditions related thereto." I disagree with Mr. Hustead's criticisms of
21 the PER on these issues. In my professional opinion, the PER adequately and properly supports
22 the GSP on the engineering issues. As set forth below, the PER fully complies with Decision

1 No. 62293. It also should be mentioned that Mr. Hustead's testimony goes beyond those limited
2 PER issues. The bulk of Mr. Hustead testimony doesn't address the specific engineering issues
3 involved in this proceeding under Decision No. 62293.

4 **III. CITIZENS' PER COMPLIES FULLY WITH DECISION NO. 62293.**

5 **Q. THROUGHOUT HIS TESTIMONY, MR. HUSTEAD ASSERTS THAT**
6 **THE PER AND SUPPLEMENTAL PER ARE NOT COMPLETE, ARE INACCURATE**
7 **AND FAIL TO COMPLY WITH DECISION NO. 62293. DO YOU AGREE?**

8 **A.** I very strongly disagree with Mr. Hustead's opinions regarding the validity and
9 accuracy of the PER. Mr. Hustead misstates the purpose and scope of the PER. It was
10 specifically written and formatted to comply with Decision No. 62293. In Decision No. 62993
11 (issued February 1, 2000), the Commission approved the concept of the GSP as a means for
12 Citizens to utilize its CAP water allocations in the Sun Cities. As part of that decision, the
13 Commission required Citizens to submit a preliminary engineering report focusing on three
14 issues: (1) the feasibility of a joint facility with Citizens' Agua Fria division; (2) the need for all
15 major elements of the project; and (3) binding commitments from the golf courses. See Decision
16 No. 62293, pp. 20-21. That was the scope and purpose of the PER. Mr. Hustead misstates the
17 goals and objectives of the PER. As a result, Mr. Hustead's testimony deviates from those
18 engineering issues.

19 Contrary to Mr. Hustead's testimony, the focus and scope of the PER was not whether to
20 implement the GSP, minimize ratepayer costs or quantify benefits to the aquifer. Rather, the
21 PER focused on whether the GSP should include a joint facility with the Agua Fria division,
22 whether elements of the GSP were justified and whether sufficient binding commitments from

REBUTTAL TESTIMONY OF RONALD JACKSON

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1 the golf courses have been obtained to support the GSP. Mr. Hustead's testimony goes well
2 beyond those issues.

3 In his testimony, for example, Mr. Hustead complains that the PER focus is too narrow
4 because it examined only the GSP and didn't consider other options to use CAP water in the Sun
5 Cities. But that testimony misconstrues Decision No. 62293 and the scope of the PER. In that
6 Decision, the Commission approved the GSP concept as recommended by the CAP Task Force.
7 The PER was not intended to cover other possible CAP water plans. Mr. Hustead simply ignores
8 the limited scope of the PER as ordered by the Commission in Decision No. 62293.

9 Another example is Mr. Hustead's suggestion that the PER is flawed because it should
10 study recharge concepts. The ACC and CAP Water Task Force already addressed and rejected
11 the recharge concept. The purpose of the PER was not to reconsider CAP water options. In
12 Decision No. 62293, the Commission evaluated recharge as an interim solution. See Decision
13 No. 62293, p. 6 (characterizing recharge as "short-term" solution). By contrast, the Commission
14 concluded that the GSP is the permanent, long-term solution. Id. at p. 16. The PER was not
15 designed or intended to reconsider recharge versus the GSP as the permanent CAP water use
16 plan. Mr. Hustead's testimony on those issues has no bearing on the PER issues.

17 Mr. Hustead's testimony is full of these types of non-issues. On page 4 of his testimony,
18 Mr. Hustead states that ".....the PER examines only whether the Alternative is capable of
19 delivering 2,372 acre feet ("ft") to Sun City West golf courses and 4,189 af to the Sun City golf
20 courses and the relative cost thereof." Mr. Hustead uses that statement as a criticism of the PER.
21 But that specific inquiry specifically was what was ordered by the Commission. In short, Mr.
22

1 Hustead raises no valid engineering criticisms of the PER. The PER is complete and accurate,
2 and complies fully with Decision No. 62293.

3 **Q. ON PAGE 4 OF HIS TESTIMONY, MR. HUSTEAD ARGUES THAT THE**
4 **PER DID NOT "...REVIEW ALL ALTERNATIVES, WHICH WOULD MAXIMIZE**
5 **THE GOAL (I.E. THE BENEFITS TO THE AQUIFER UNDERLYING THE SUN**
6 **CITIES WHILE MINIMIZING THE COSTS), AND COMPARE THE ALTERNATIVES**
7 **BASED UPON THEIR RELATIVE COSTS TO ACHIEVE THE GOAL." MR.**
8 **HUSTEAD ALSO ARGUES THAT THE PER DID NOT "ATTEMPT TO MAXIMIZE**
9 **THE USE OF EXISTING FACILITIES, MINIMIZE THE NEED FOR NEW**
10 **FACILITIES, OBTAIN PARTNERS TO SHARE THE COSTS AND ELIMINATE**
11 **COMPONENTS THAT ARE EITHER UNNECESSARY OR ARE TOO COSTLY IN**
12 **RELATION TO THE GOAL OF BENEFITING THE AQUIFER." DO YOU AGREE?**

13 **A. No, I do not agree with Mr. Hustead's assertions. His testimony is flawed on**
14 **several fronts. First and foremost, to the point of maximizing the benefit to the aquifer beneath**
15 **the Sun Cities, that issue already has been reviewed at length by the CAP Task Force and ruled**
16 **on by the Commission. In Decision No. 62293, the Commission determined that the use of CAP**
17 **water in the Sun Cities was necessary to prevent "groundwater depletion of the aquifer, land**
18 **subsidence and other environmental damage." See Decision No. 62293, p. 18. The Commission**
19 **also determined that the "Groundwater Savings Project will provide direct benefits to the Sun**
20 **City areas." Id. at p. 19. Finally, the Commission considered various "rate shock" and cost-**
21 **related arguments, and approved the GSP concept recommended by the CAP Task Force. Id. at**
22 **p. 16. Those issues are not the subject of the PER as I have already indicated.**

1 Second, in order to comply with Decision No. 62293, the PER examined five (5)
2 alternatives to bring CAP water to the Sun Cities. Our engineering team determined that those
3 five (5) alternatives were the most likely candidates to minimize cost and achieve all the goals of
4 the Groundwater Savings Project.

5 Third, the alternative which was found to have the lowest life cycle cost was the
6 alternative recommended by the PER. The PER clearly demonstrates in the "Summary of 50
7 Year Life Cycle Costs" on page E-4 that the recommended Alternative "A" is has the lowest cost
8 of all the alternatives investigated.

9 Fourth, to the point of maximizing use of existing facilities, the PER proposes to make
10 use of the existing Sun City West Effluent Delivery System in all of the alternatives investigated.
11 Although not part of the chosen alternative, four of the five alternatives investigated the use of
12 the Beardsley Canal to convey CAP water part of the distance between the CAP canal and the
13 Sun Cities. Beyond those systems, there are no other existing facilities available to the
14 Groundwater Savings Project.

15 Fifth, to the point of seeking partners for the Groundwater Savings Project, the PER
16 addressed three (3) alternatives for partnering the GSP with Citizens Communications - Agua
17 Fria Division, the City of Surprise or both in which all partners would share costs. The costs and
18 technical considerations of such a partnership are presented in Section C of the PER. Mr.
19 Hustead's testimony that the PER did not address these considerations is incorrect.
20
21
22

1 **Q. DO YOU AGREE WITH MR. HUSTEAD'S ASSERTION REGARDING**
2 **THE PER THAT "THERE ARE SIGNIFICANT FACTORS THAT ARE EITHER**
3 **ASSUMED AS NECESSARY COMPONENTS OF THE PLAN OR REJECTED**
4 **WITHOUT SUFFICIENT EVALUATION OR EXPLANATION"?**

5 **A.** No, I very strongly disagree with Mr. Hustead's assertion. In his testimony, for
6 example, Mr. Hustead contends that the use of existing facilities was not maximized. But his
7 testimony overlooks the fact that there are no other existing facilities beyond the Sun City West
8 Effluent Delivery piping system and the Beardsley Canal which could have been utilized as part
9 of the GSP. The PER adequately addresses use of both options. Section D of the PER details
10 the proposed use of the Sun City West Effluent Delivery System (starting on page D-50) and the
11 Beardsley Canal (starting on page D-3). The recommended alternative proposes to make use of
12 the SCW Effluent Delivery System. Four other alternatives investigated use of the Beardsley
13 Canal, but these alternatives either were not the least cost alternative or were not viable.

13 **Q. DOES MR. HUSTEAD RAISE ANY VALID ENGINEERING CRITICISMS**
14 **OF THE PER?**

15 **A.** No. As set forth below, Mr. Hustead's testimony contains numerous erroneous
16 and unsupported conclusions and opinions. Mr. Hustead raises issues that either aren't supported
17 or have no bearing on the PER. I've addressed the flaws in Mr. Hustead's testimony below.

18 Mr. Hustead criticizes the PER because he believes that the Recreation Centers of Sun
19 City have "no right" to demand exclusive rights to use Sun City's allocation of CAP water.
20 While this may be Mr. Hustead's opinion, it is certainly the "right" of the Recreation Centers of
21 Sun City not to participate in the project. Should the RCSC not participate in the GSP,
22

1 approximately 497 acre feet of the allotment could not be utilized in Sun City due to lack of
2 sufficient turf area at the remaining three golf courses. That would prevent the GSP from
3 achieving one of its main objectives--complete consumption of Citizen's entire annual allotment
4 of CAP water allocated to the Sun Cities and Youngtown. Portions of the annual CAP allocation
5 that are not withdrawn for the CAP facilities cannot be credited to future years and to make
6 matters worse, they must still be paid for--whether they are used or unused.

7 Also, Mr. Hustead states in his testimony that two of the three Sun City country club
8 courses are north of Bell Road. This is incorrect. Only Union Hills Country Club is north of
9 Bell Road; Palmbrook and Sun City County Clubs are south of Bell Road. In fact, the Sun City
10 Country Club is the most southerly of all Sun City golf courses. These facts might tend to alter
11 Mr. Hustead's thinking that the participation of these country clubs would reduce piping cost of
12 the overall project.

13 Mr. Hustead also takes issue with the premise that the Sun Cities CAP allocation must be
14 used on golf courses. As I indicated above, the choice of a CAP water usage concept is not the
15 subject of the PER. The subject of the PER is an engineering report on the Commission
16 approved CAP usage concept.

17 **Q. DOES MR. HUSTEAD RAISE ANY VALID ISSUES REGARDING RECHARGE?**

18 **A.** No. In his testimony, Mr. Hustead asserts that recharge was entirely ignored and
19 should have been the focus of the PER. That testimony is not well-taken because recharge was
20 not part of the community chosen and Commission approved CAP water usage concept. The
21 CAP Task Force examined a number of options for use of the Sun Cities/Youngtown's annual
22

1 CAP allotment. The concept of recharging the CAP allocation was examined. The conclusion
2 of the CAP Task Force, which included members of the organization Mr. Hustead represents,
3 was that the GSP would be most beneficial. The goal was a GSP to pipe CAP water to the Sun
4 Cities' golf courses in order to reduce groundwater water usage on a gallon for gallon basis.

5 **Q. ARE MR. HUSTEAD'S OPINIONS REGARDING USE OF THE**
6 **BEARDSLEY CANAL VALID?**

7 **A.** No. Mr. Hustead argues that the Beardsley Canal four month long, annual dry-up
8 period was assumed to create insurmountable operational problems. This is an incorrect
9 statement. Nowhere in text of the PER does it state that the operational problems created by the
10 annual dry-up are insurmountable. The most significant operational problem created by the
11 annual dry-up, as stated on Page D-4 of the PER, is that even if the pipeline and pump station
12 components of Alternative B, C and D were sized so as to deliver the entire CAP allotment in an
13 8 months time period, the participating golf courses need 10 to 11 months to absorb the entire
14 CAP allotment (as shown on page B-16 of the PER). Thus, a portion of the Sun Cities CAP
15 water would go unused each year that the Beardsley Canal dry-up occurred. As page D-4 of the
16 PER indicates: "This effectively eliminates these alternatives as long as the MWD continues to
undergo an annual dry-up in the Beardsley Canal".

17 However, in order to present a true comparison with the other alternatives presented,
18 Alternatives B, C, D are sized and their respective costs estimated assuming that the Beardsley
19 Canal is in year round operation and that the annual winter dry-up has been discontinued.
20 Monthly water delivery schedules are shown graphically on page B-15 of the PER. There are no
21 months in the annual schedule in which CAP water is not delivered.
22

1 The charges for wheeling water through the Beardsley Canal presented in the PER were
2 approximate rates given to Citizens by officials of the Maricopa Water District. Citizens was not
3 invited to negotiate nor do we have any indication that Citizens has negotiation power with
4 MWD. Furthermore, Mr. Hustead's assertion that the fact that wheeling rate negotiations were
5 not carried out and, thus, served to skew the PER to Alternative A is a highly unsupported
6 statement. The rates presented to Citizens by MWD were presented in good faith in hopes of
7 building a future partnership and those rates were used in the PER.

8 **Q. DO YOU AGREE WITH MR. HUSTEAD'S TESTIMONY REGARDING**
9 **USE OF THE SUN CITY WEST DISTRIBUTION SYSTEM?**

10 **A.** No. Mr. Hustead asserts that Citizens accepted the Recreation Centers of Sun
11 City West's denial of the request to allow CAP water to be transported from west to east though
12 their existing Effluent Delivery System without analysis or evaluation. That statement is
13 incorrect.

14 As stated on page D-19 of the PER regarding Alternative E (which examines flow from
15 west to east), "Calculations indicate that the existing SCW effluent delivery system is inadequate
16 to carry the required flows back to and across the river without increasing the pressure in the
17 pipeline via a new pumping system. The pressure required would exceed the physical limits of
18 the existing pipe and could potentially produce excessive leakage and pipe breaks. The delivery
19 pressure produced by gravity flows in the Alternative E pipeline is not adequate to provide flows
20 at the various discharge locations." Also, as indicated in the letter contained in Appendix C to
21 the PER, the Recreation Centers of Sun City West (RCSCW) may exercise their contractual right
22 to purchase treated effluent from the Sun City West Water Reclamation Facility and deliver said

1 effluent to the RCSCW golf courses via the existing effluent delivery system pipelines. The flow
2 in the existing pipeline under this circumstance would be from east to west. If the existing Sun
3 City West effluent delivery system were utilized as the GSP CAP trunk main to convey CAP
4 water from west to east, particularly to Sun City, the flow of CAP water from west to east would
5 preclude any flow of treated effluent to Sun City West in the opposite (east to west) direction.

6 **Q. DOES THE PER ADEQUATELY CONSIDER THE POSSIBLE USE OF**
7 **THE SUN CITY WEST DISTRIBUTION SYSTEM?**

8 **A.** Yes. Mr. Hustead asserts that the existing Recreation Centers of Sun City West
9 Effluent Delivery System was considered without evaluation of any improvements. This is a
10 broad and incorrect statement. The PER fully and adequately addressed the possible use of the
11 Sun City West Distribution System.

12 As I have already indicated, the use of the existing effluent delivery system was
13 considered as part of every Alternative evaluated by the PER including the recommended
14 Alternative. Analysis of the recommended Alternative "A" indicates that the existing piping
15 system can be used without modification other than end of pipe controls and valving at each
16 discharge point.

17 The analysis of Alternative "E" indicated that it is not hydraulically possible to deliver
18 the flow rate required by this project through the existing piping system in a west to east
19 direction. Therefore, Alternative "D" analyzed the possibility of improving the existing piping
20 system by utilizing a new trunk pipeline from the Beardsley Canal through Sun City West to
21 allow for east to west flow through the existing piping system.
22

1 **Q. IS THE PER AN ACCURATE AND COMPLETE ENGINEERING**
2 **ANALYSIS OF THE GSP ON THE THREE ISSUES RAISED BY DECISION NO. 62293?**

3 **A. Yes. Mr. Hustead raises several arguments against the PER. But he has no valid**
4 **engineering support for such testimony. For example, Mr. Hustead asserts that the individual**
5 **and cumulative summaries (presumably meaning cost estimates) do not correlate with regard to**
6 **booster station and right-of-way costs resulting in skewing the recommendation toward**
7 **Alternative A. Mr. Hustead's accusation is incorrect and unsupported. Mr. Hustead presents no**
8 **evidence to support his claim.**

9 Citizens and HDR investigated the so called "lack of correlation" regarding the pump
10 station and right-of-way acquisition costs. The only true "lack of correlation" we have found
11 was the failure to replace the text of part of the cost calculation table on page D-47 (which
12 reports the annual costs of the booster pump station) with the text of the final calculation.
13 However, the costs represented in the "Summary of Operations & Maintenance Costs" on page
14 E-3 of the PER are the accurate and final costs and thus the summary cost comparison upon
15 which the PER's conclusions are reached are completely accurate.

16 **Q. DO YOU AGREE WITH MR. HUSTEAD'S ASSERTION THAT THE PER**
17 **SHOULD HAVE INCLUDED A HYDROLOGIC ANALYSIS?**

18 **A. No, I do not agree. I assume Mr. Hustead is referring to a hydro-geological**
19 **analysis. A hydro-geological analysis would be performed to assess the movement of**
20 **groundwater through an aquifer which is not relevant here. All the CAP water applied to the golf**
21 **course turf will be consumed by the turf grass for growth and will not enter the aquifer. The**
22 **"groundwater savings" associated with the "Groundwater Savings Project" comes from the**

1 replacement of water that the golf courses would have pumped from the aquifer via wells with
2 CAP water. Thus, the GSP saves groundwater which is already present in the aquifer.

3 **Q. DO YOU AGREE WITH MR. HUSTEAD'S ASSERTION THAT THE PER**
4 **SHOULD HAVE INCLUDED A STUDY OF THE INTEGRATION OF THE EXISTING**
5 **SUN CITY WEST WATER RECLAMATION FACILITY AND ITS UNDERGROUND**
6 **STORAGE FACILITY AS PART OF THE GSP?**

7 **A. No, I do not agree. As I have indicated several times, Mr. Hustead seems to be**
8 **determined to ignore Commissions Decision No. 62293 which approved the concept of the GSP**
9 **"as presented" by the CAP Task Force. The "integration" debate simply is not part of the PER.**
10 **The CAP Task Force and the Commission considered a Citizens only recharge project and**
11 **participation in a joint recharge project and rejected these options in favor of the GSP.**

12 **IV. THE PER ADEQUATELY ANALYZED ALL NECESSARY ELEMENTS OF THE**
13 **GSP AND POSSIBLE JOINT PROJECTS.**

14 **Q. IN YOUR OPINION, DOES THE PER SUPPORT AND ADDRESS ALL**
15 **NECESSARY ELEMENTS OF THE GSP?**

16 **A. Yes. The PER provides a complete and thorough review of all necessary**
17 **elements of the GSP. Mr. Hustead has raised no valid engineering criticisms of the PER in**
18 **analyzing necessary elements of the project.**

19 **Q. DOES THE PER ADEQUATELY ADDRESS AND CONSIDER POSSIBLE**
20 **JOINT PROJECTS WITH CITIZENS' AGUA FRIA DIVISION?**

21 **A. Yes. The entirety of Section C is devoted to this subject.**
22

1 **Q. DO YOU AGREE WITH MR. HUSTEAD'S ASSERTION THAT THE**
2 **PER'S TREATMENT OF THE BEARDSLEY CANAL REFLECTS A BASIC FLAW**
3 **WITH THE PER?**

4 **A.** No, I do not agree. In fact, it is very difficult to follow Mr. Hustead's logic on
5 this point (on page 20 of his testimony). Mr. Hustead raises several issues that have no relation
6 to this project's use of the Beardsley Canal. Mr. Hustead begins by saying that "this aspect of
7 the PER illustrates the adverse impacts created by assuming certain golf courses will not
8 participate and the system must be designed to ensure that every acre foot of CAP water can be
9 delivered every year to the designated golf courses and used proportionately on participating golf
10 courses." But Mr. Hustead doesn't elaborate on that statement.

11 Instead, Mr. Hustead says "the system should be designed to optimize CAP water
12 deliveries while minimizing costs to Citizen's ratepayer." The PER clearly recommends the
13 lowest cost alternative while delivering the entire annual allotment of CAP water to the Sun
14 Cities. Every alternative examined by the PER--including the chosen alternative--proposes to
15 utilize the existing Sun City West Effluent Delivery system. CAP water is delivered to every
16 golf course that could or would take the water and the annual allocation is consumed.

17 Mr. Hustead also says "the Agua Fria Recharge Facility should be integrated into the
18 Plan to minimize oversizing and provide operational flexibility." The Agua Fria Recharge
19 Facility has nothing to do with the PER.
20
21
22

1 **Q. DO YOU AGREE WITH MR. HUSTEAD'S ASSERTION THAT THE**
2 **PER'S ANALYSIS IS INADEQUATE AND INSUFFICIENT TO JUSTIFY**
3 **ELIMINATING ALTERNATIVE "E"?**

4 **A. No, I do not agree. The basis for this statement by Mr. Hustead appears to be his**
5 **statement that "no attempt was made to identify the impacts of specific improvements to the**
6 **existing system or alternative connection points in an effort to address the constraints to moving**
7 **water from west to east." But the very improvement he is proposing was presented as**
8 **Alternative "D." As I have already discussed, our engineering team verified that use of the Sun**
9 **City West Effluent Delivery System to deliver GSP flow in the west to east direction is not**
10 **possible. Therefore, carrying forward the concept of utilizing the existing piping system with**
11 **minimal improvements and cost, the design team conceived Alternative "D" which proposed to**
12 **install a single new trunk pipeline from the Beardsley Canal, through Sun City West, beneath the**
13 **Agua Fria River and connecting at the eastern end of the existing system.**

14 **Q. IN HIS TESTIMONY, MR. HUSTEAD CONTENDS THAT NEW PIPING**
15 **ADDED TO THE SUN CITY WEST EFFLUENT DELIVERY SYSTEM WILL**
16 **"....SIGNIFICANTLY IMPROVE THE EXISTING SYSTEM HYDRAULICS MAKING**
17 **ALTERNATIVE "E" A VIABLE ALTERNATIVE." DOES MR. HUSTEAD PROVIDE**
18 **ANY SUPPORT FOR THAT STATEMENT?**

19 **A. No. Mr. Hustead does not present, and in fact admits (on page 23 of his**
20 **testimony) that he has not performed a hydraulic analysis to validate his assumptions and has not**
21 **presented cost estimates to allow comparison to the PER's alternatives.**
22

1 **Q. DO YOU AGREE WITH MR. HUSTEAD'S ASSERTION THAT THE**
2 **SCADA SYSTEM PROPOSED BY THE PER IS NOT MANDATORY?**

3 **A.** I strongly disagree. The basis of Mr. Hustead's assertion seems to be based on his
4 experience with the RWDS project in the City of Scottsdale. Mr. Hustead admits on page 3 of
5 his testimony that the RWDS includes "two storage reserves and five pump stations." If this is
6 Mr. Hustead's point of reference, he's doing the proverbial comparison of apples to oranges. By
7 utilizing storage reservoirs and pumping stations, a system can essentially provide volume and
8 pressure on demand. Here, our engineering team has displayed a high degree of skill by
9 designing the recommended alternative in the PER which does not require storage reservoirs or
10 pumping stations.

11 The trade off, however, is that the proposed system cannot provide pressure nor volume
12 on demand to every customer on the system at all times. Thus, water deliveries must be
13 orchestrated from a central point in order to maintain proper pressure and flow rate in the system
14 as each customer receives their flow requirements in turn. If the GSP system was subject to
15 individual golf course control, there would be times when some customers would require water
16 and it would not be available at their tap. The other reason that the system must be coordinated
17 by a computerized SCADA system is to enforce the Central Arizona Project requirement that no
18 more than two adjustments of flow rate from the CAP canal be made per day. If individual
19 customers were allowed to take water at any time, flow adjustment would happen continuously
20 and Citizens would be in violation of its contract with the Central Arizona Project.

21 SCADA (Supervision, Control and Data Acquisition) is merely an acronym that has
22 evolved for a computerized method of aiding operators of complex systems in tasks that were

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1 formally conducted manually. All complex systems whether they be factory processes or water
2 delivery systems have always had SCADA systems whether they are manual or automated.

3 The flow meters, level sensors and valves indicated in Section D, Part 7 of the
4 Preliminary Engineering Report (PER) are required for billing and regulatory compliance and
5 must be part of any SCADA system, manual or automated. This is part of the Control and Data
6 Acquisition portion of the SCADA system. The computers and radios are proposed to automate
7 the system and allow the supervision part of SCADA to be performed remotely and with a
8 greatly reduced workforce.

9 The GSP proposes to construct a piping network which spans approximately 4.5 miles
10 east to west and approximately 7 miles north to south. The system will supply water (at times
11 constantly) to 15 bodies of water, all of which have unique individual needs for timing and
12 volume of water supply. For example, some lakes are small and are drained by their associated
13 golf course watering systems quickly. Thus, these lakes must be filled more frequently. Other
14 lakes are large and do not require filling as often. Some lakes have ornamental streams
15 associated with them which require that the lake be filled during the daylight hours so as to retain
16 the intent of the landscape design.

17 As the acronym suggests, the major purpose of the SCADA system contemplated by the
18 GSP is to allow monitoring and control of the GSP from one central point. The system described
19 in the PER is fairly modest. The system proposed includes a small, limited function remote
20 computer at each body of water associated with the GSP. The computer has three functions: to
21 open and close a valve which allows CAP to fill the water body; to monitor lake level; and, to
22 monitor flow rate and pressure of the water flow into the water body. The computer is attached

1 to a radio which sends data and receives instructions from the central monitoring point. In
2 addition to the computers described above, one additional computer will be located at the CAP
3 turnout on Lake Pleasant Road in order to monitor flow rate in the GSP trunk main. This
4 monitor is necessary in order to enforce the CAP requirement that no more than two adjustments
5 of flow rate from the CAP canal be made per day and for billing by the CAP.

6 **Q. IN HIS TESTIMONY, MR. HUSTEAD QUESTIONS THE CREDIBILITY**
7 **OF THE PER BECAUSE OF DISCREPENCIES BETWEEN THE PER AND**
8 **SUPPLEMENTAL PER REGARDING PARTICIPATION OF THE PRIVATE GOLF**
9 **COURSES. CAN YOU EXPLAIN THAT ISSUE?**

10 **A.** Yes. Both Mr. Buras of HDR Engineering (who signed and sealed the PER) and
11 myself (who sealed the Supplemental PER) were part of the engineering team that prepared the
12 PER. The Supplement was prepared internally by Citizens as a matter of expedience. There is
13 no contradiction between the two reports--just a reanalysis of the engineering data.

14 The reason for the reanalysis is explained in this excerpt from page 1 of the Supplemental
15 Report: "The current version of the Groundwater Savings Plan Preliminary Engineering Report
16 indicated (on Page A-4) that without the participation of the two private courses in Sun City
17 West, the GSP will not be operationally feasible. This supplemental report takes a closer look at
18 the data to determine if the Groundwater Savings Plan could be operationally feasible without
19 the participation of Hillcrest Country Club."

20 There were two factors studied which led to the Supplemental PER. The first factor is
21 the need to fully consume the entire quantity of CAP water allotted to Sun City West on an
22 annual basis. The second factor is need for volumetric flexibility. Volumetric flexibility is a

1 safety mechanism designed into the system by which excess water can be stored or diverted from
2 its intended destination should that destination become unavailable, either suddenly or over an
3 extended period, to receive that water.

4 After reviewing the engineering data, I concluded in the Supplemental PER that it is
5 operationally feasible to operate the GSP without the participation of Hillcrest Golf Club. HDR's
6 statement in the original PER does not impact the engineering calculations. Mr. Hustead offers
7 no criticism of the actual analysis.

8 **Q. DO YOU AGREE WITH MR. HUSTEAD'S ASSERTION THAT**
9 **EVALUATION OF THE FEASIBILITY OF A JOINT PARTICIPATION WITH THE**
10 **AGUA FRIA DIVISION AND THE CITY OF SURPRISE REFLECTED IN THE PER IS**
11 **NOT AN IN DEPTH ANALYSIS?**

12 **A.** No. Mr. Hustead makes the statement that the study presented indicates that the
13 participation of one or both of the partners proposed would substantially reduce the cost of
14 bringing CAP water to the Sun City West service area as compared to constructing the
15 Alternative "A" trunk line. This is incorrect and has no basis in fact. The PER makes no claim
16 of that nature. The only claim that the PER makes regarding cost of a joint project (as indicated
17 on page E-4) is that, depending on the partners, the 50 life cycle cost to the GSP would be
18 between \$2.22 million and \$2.89 million and the total GSP cost of such alternatives would be
19 between \$19.20 million and \$19.87 million. This is compared to the total 50 year life cycle cost
20 of Alternative "A" of \$16.46 million which is at least \$2.74 million less than the joint project
21 cost.
22

1 Mr. Hustead argues that the PER should have evaluated a joint option limiting CAP
2 deliveries to those that could be made utilizing the existing effluent system in a west to east
3 direction. But the objective of the GSP was to deliver the "entire" annual CAP allotment to the
4 Sun Cities, not just portions of the allotment. Page C-4 of the PER indicates that Alternative "E"
5 was considered as a component of the joint project but for hydraulic reasons and due to the
6 system owners' needs the Alternative is not feasible.

7 Along the same lines, Mr. Hustead argues that the booster pump station (required as a
8 component of both Alternatives "D" and "E") should have been analyzed as a part of the cost
9 sharing of the joint facility. That statement makes no sense. Both the Agua Fria and City of
10 Surprise joint projects would have taken delivery of CAP water by gravity flow as explained on
11 page C-2 of the PER. Therefore, only the GSP would require the use of a booster pump station
12 to deliver its CAP water and would be the only party in the partnership paying the cost of the
booster pump station.

13 **Q. DOES THAT CONCLUDE YOUR TESTIMONY?**

14 **A. Yes.**

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